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HD **We can't let community bonds melt away**
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Glaciers are Western Canada's best friends. We'll need them to help endure climate change – just as much as we'll need each other, Sam Anderson writes

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The blistering heat wave of June, 2021, was unrelenting in Vancouver. And I had made the unfortunate decision to move, right in the middle of it.

As a friend and I dripped in sweat while carrying a couch from the rented U-Haul van, I thought to myself: where am I? The oppressive heat and the molten sky in a place surrounded by mountains and glacier ice was deeply surreal. I'm sure millions of British Columbians have similar visceral memories of their own experiences of our collective trip through that inescapable heat.

That week, however, proved to be a moment of great difference in experience. For myself and many others, the heat wave was strange and profoundly uncomfortable, but ultimately surmountable; moving that day was only a regrettable choice, but not a deadly one. But for others in B.C., the experience was dark, deadly and profoundly tragic. Hundreds of people died, and on June 30, 2021, a day after scorching June temperatures reached 49.6 C – more than 2 degrees hotter than the hottest day ever recorded in Las Vegas – a wildfire burned the village of Lytton, B.C., to the ground. One marine biologist at the University of British Columbia also estimated that more than a billion marine animals may have perished in the heat.

As the province now rebuilds highways first shut down by raging wildfires and then shattered by flooding and landslides, and as we face additional uncertain summers of melt and heat, we can reflect and learn from how the heat dome punctured nearly all aspects of our natural environment. In particular, last summer revealed important lessons about the inequalities and differences not just among our people and ecosystems, but in the very defining features of our landscapes: our rivers and the glaciers that help determine whether they thrive or suffer.

For many rivers, last year's heat wave had a lasting effect. June's intense heat rapidly melted snow and ice wherever it could be found, initially causing high river flows in streams that had any melt left to give.

Downstream communities watched with tension as flooding-driven evacuation fears buoyed, and then, in many cases, thankfully receded. But then the post-heat-wave river flows receded and then receded some more, leading them to become extremely dry. In July, there was a lack of rain, and with much of the remaining snowpack depleted by the heat dome, many of the province's rivers had little left to give.

In contrast, rivers that were fed by glacier melt, such as the Bridge River near Lillooet or those in the upper reaches of the Fraser and Columbia basins, told us an entirely different story. A river with glaciers is like a friend with air conditioning, able to offer reprieve during the hottest days. Enhanced glacier melt through the rest of summer compensated for the otherwise hot and dry conditions, offering the rivers a critical source of water after the snowpack had melted away. Highly glaciated rivers thus flowed within the normal expected range throughout much of the rest of summer owing to the additional water provided by glaciers.

Glaciers are not just massive bodies of ice; they offer stability in times of turbulence, and resilience in the face of unprecedented extremes.

And much of life in B.C. – from the salmon run, to water supply in communities, to hydropower generation – has grown and been built around the stability offered by the thousands of glaciers spanning the Coastal and Rocky Mountain ranges, perhaps more than many people realize.

This resilience has shaped how we live, eat, work and play, and contributes to our understanding and feeling about where we are.

In 2020, I led a study that identified the communities in Alberta whose water supplies are most vulnerable to the loss of glacier ice, finding that roughly a quarter of the province relies on glacially driven resilience when they turn on their taps in late summer. We analyzed historical river flow datasets to pinpoint when, where and by how much glacier melt stabilizes and supports river flows, and we quantified the unique behaviours of glacier-fed rivers over the past several decades.

What we observed during and after the 2021 heat wave further underscores this fundamental truth about life in Western Canada: ice matters.

But the loss of glacier ice is accelerating as the climate changes. Several studies indicate that a vast majority of glacier ice in Western Canada will be gone by the end of the century. As the ice disappears, so does its ability to act as a buffer to the extremes of our times, and we are barreling toward a less familiar, less stable and less resilient future because of it. The heat wave last June revealed the acute benefits of having glaciers in B.C.'s mountains, but it also laid bare what we stand to lose.

Familiarity, stability and resilience: These are characteristics we want for our communities and our homes. If we know that glaciers aren't going to be there to provide this resilience for us, we should at least learn from their example.

Key rivers that flow across Western Canada, such as the Fraser, Columbia, Saskatchewan and Athabasca, are each fed by many of the thousands of glaciers that span the Coastal and Rocky Mountain ranges, and it is the collective response of these glaciers that determines the stability and resilience of the river downstream. The Bow River is not only fed by the Bow Glacier, but also the Victoria, Crowfoot, Haig and many others that cascade down the Rocky slopes. Just as no single glacier protects us alone, we will not achieve stability or resilience at the community scale if we act alone as individuals. It will be through our collective response that we make progress toward addressing the climate crisis.

Much of the fight to form stable and resilient communities will be fought with policy at all levels in the political arena, ranging from implementing carbon pricing, to enhancing the urban forest in the most barren concrete areas of our cities. While we can advocate and fight for these policy solutions, in the meantime we can also talk to each other. Talking about climate change with friends, neighbours, leaders and family, as simple as it seems, is an essential action. Research shows that most people are aware of and concerned about climate change. Yet only a minority of us are talking about it with the people in our lives – and thinking we are alone when we are not is only making it harder to address the forces slowing climate action.

Communicating with our neighbours strengthens our bonds as a community, which is where we will turn when the next crises arrive.

When glaciers are not there to offer us respite, we will need each other more than ever.

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